

# How can we obtain more money?

Year 9

This unit is aligned with the following Australian Curriculum learning areas:  
Mathematics, supported by English, Economics and Business and  
Work Studies



ASIC's  
**MONEYSMART** Teaching



**ASIC**

Australian Securities & Investments Commission

## Copyright information

Websites: [asic.gov.au](http://asic.gov.au), [moneysmart.gov.au](http://moneysmart.gov.au)

## Creative Commons

This resource is available under the Creative Commons licence (BY-NC-SA). Under this licence, the material is available for free use and adaption so that educators can use, adapt and re-publish material from the resource without seeking the permission of ASIC.

## Copyright notice



This work is based on materials that constitute copyright of the Australian Securities and Investments Commission and is licensed under a **Creative Commons Attribution Non-Commercial Share Alike 3.0 Australia Licence**. For an explanation of what this licence allows you to do please refer to the Creative Commons website at [creativecommons.org.au](http://creativecommons.org.au).

You must include this statement on any adaption of the resource:

This work is licensed under a Creative Commons Attribution Non-Commercial Share Alike 3.0 Australia Licence (see: [creativecommons.org/licenses/by-nc-sa/3.0/au/legalcode](http://creativecommons.org/licenses/by-nc-sa/3.0/au/legalcode)). A Legal Notice applies to the use of these materials, see: Legal Notice: [moneysmart.gov.au/copyright](http://moneysmart.gov.au/copyright)

The material in this resource is made available for the purpose of providing access to general information about consumer and financial literacy education and is not professional advice. If you intend to rely on the material, you should obtain advice relevant to your particular circumstances to evaluate its accuracy, currency and completeness.

Some material may include or summarise views, standards or recommendations of third parties. ASIC does not endorse such material and its inclusion does not indicate that ASIC recommends any course of action.

ASIC requests that if you re-publish this work that you notify ASIC by email [moneysmartteaching@asic.gov.au](mailto:moneysmartteaching@asic.gov.au). We are interested in hearing how people are using and adapting the materials.

## CAL exemption

This resource is exempt from collection by copyright agencies and is a free resource for educational institutions.

## Note

All links were correct at the time of publication, however, due to the dynamic nature of the internet ASIC cannot guarantee they will remain correct.

# How can we obtain more money?

<b>Year level</b>	9
<b>Duration of unit</b>	10.5 hours*
<b>Learning areas</b>	Mathematics focus supported by English, Economics and Business and Work Studies

## Unit description

Alistair and Bonnie are Year 9 students who would like to earn some money. They investigate different ways of earning money, including getting a job and then allowing that money to grow by using simple interest. They also investigate the effects of inflation and its influence on decision making around financial goals.

In this unit, students assess the advantages and disadvantages of different ways of obtaining money including different ways of getting paid. They investigate the number of hours per week that Year 9 students work, perform simple interest calculations, calculate earnings based on rates of pay and commission, and investigate the way that prices change over time.

The unit concludes with students emailing a friend to give them helpful advice on getting a job, as well as what to do with the money they earn.

## Knowledge and understandings

- ▶ Earning money can help to achieve one's goals.
- ▶ Managing money wisely can make it grow.
- ▶ Spreadsheets are useful tools for representing and analysing data.
- ▶ The accuracy of statistical results is affected by sample size.

## Pre-requisite knowledge

To undertake this unit, students require an understanding of:

- ▶ ratio and proportion
- ▶ statistics and constructing graphs
- ▶ mean and median
- ▶ Excel programs – designing spreadsheets
- ▶ % increase and decrease
- ▶ mean, median and mode
- ▶ wages and salary, bonuses, commission
- ▶ census and sample

## Note

Some concepts may require additional student practice. Textbook exercises can be used to provide practice in mathematical concepts.

*\* Timings are provided as a guide only. Teachers will tailor the activities to suit the capabilities and interests of their class. The unit and student worksheets can be adapted to your needs.*

## Links

The following table provides the relevant links to the Australian Curriculum learning areas, achievement standards and general capabilities.

Australian Curriculum learning areas and achievement standards	
Mathematics	<b>Content descriptions</b> <ul style="list-style-type: none"> <li>▶ <b>Strand: Number and Algebra</b> <ul style="list-style-type: none"> <li>— Sub-strand: Real Numbers               <ul style="list-style-type: none"> <li>○ Solve problems involving direct proportion. Explore the relationship between graphs and equations corresponding to simple rate problems (ACMNA208)</li> </ul> </li> <li>— Sub-strand: Money and Financial Mathematics               <ul style="list-style-type: none"> <li>○ Solve problems involving simple interest (ACMNA211)</li> </ul> </li> <li>— Sub-strand: Linear and non-linear relationships               <ul style="list-style-type: none"> <li>○ Sketch linear graphs using the coordinates of two points and solve linear equations (ACMNA215)</li> </ul> </li> </ul> </li> <li>▶ <b>Strand: Statistics and Probability</b> <ul style="list-style-type: none"> <li>— Sub-strand: Chance               <ul style="list-style-type: none"> <li>○ Investigate reports of surveys in digital media and elsewhere for information on how data were obtained to estimate population means and medians (ACMSP227)</li> </ul> </li> <li>— Sub-strand: Data representation and interpretation               <ul style="list-style-type: none"> <li>○ Identify everyday questions and issues involving at least one numerical and at least one categorical variable, and collect data directly and from secondary sources (ACMSP228)</li> <li>○ Compare data displays using mean, median and range to describe and interpret numerical data sets in terms of location (centre) and spread (ACMSP283)</li> </ul> </li> </ul> </li> </ul>
	<b>Achievement standards</b> <p><b>By the end of Year 9, students solve problems involving simple interest.</b> They interpret ratio and scale factors in similar figures. Students explain similarity of triangles. They recognise the connections between similarity and the trigonometric ratios. <b>Students compare techniques for collecting data from primary and secondary sources. They make sense of the position of the mean and median in skewed, symmetric and bi-modal displays to describe and interpret data.</b></p> <p>Students apply the index laws to numbers and express numbers in scientific notation. They expand binomial expressions. They find the distance between two points on the Cartesian plane and the gradient and midpoint of a line segment. <b>They sketch linear and non-linear relations.</b> Students calculate areas of shapes and the volume and surface area of right prisms and cylinders. They use Pythagoras' Theorem and trigonometry to find unknown sides of right-angled triangles. Students calculate relative frequencies to estimate probabilities, list outcomes for two-step experiments and assign probabilities for those outcomes. They construct histograms and back-to-back stem-and-leaf plots.</p>

## English

### Content descriptions

#### ▶ Strand: Literacy

- Sub-strand: Interacting with others
  - Use interaction skills to present and discuss an idea and to influence and engage an audience by selecting persuasive language, varying voice tone, pitch, and pace, and using elements such as music and sound effects (ACELY1811)
  - Plan, rehearse and deliver presentations, selecting and sequencing appropriate content and multimodal elements for aesthetic and playful purposes (ACELY1741)
- Sub-strand: Creating texts
  - Create imaginative, informative and persuasive texts that present a point of view and advance or illustrate arguments, including texts that integrate visual, print and/or audio features (ACELY1746)

### Achievement standards

**By the end of Year 9, students** analyse the ways that text structures can be manipulated for effect. They analyse and explain how images, vocabulary choices and language features distinguish the work of individual authors.

They evaluate and integrate ideas and information from texts to form their own interpretations. They select evidence from texts to analyse and explain how language choices and conventions are used to influence an audience. They listen for ways texts position an audience.

Students understand how to use a variety of language features to create different levels of meaning. They understand how interpretations can vary by comparing their responses to texts to the responses of others. In creating texts, students demonstrate how manipulating language features and images can create innovative texts.

Students **create texts that respond to issues**, interpreting and integrating ideas from other texts. **They make presentations and contribute actively to class and group discussions, comparing and evaluating responses to ideas and issues. They edit for effect, selecting vocabulary and grammar that contribute to the precision and persuasiveness of texts** and using accurate spelling and punctuation.

## Economics and business

### Content descriptions

#### ▶ Strand: Knowledge and Understanding

- Why and how people manage financial risks and rewards in the current Australian and global financial landscape (ACHEK040)
- The changing roles and responsibilities of participants in the Australian or global workplace (ACHEK042)

#### ▶ Strand: Skills

- Sub-strand: Questioning and research
  - Develop questions and hypotheses about an economic or business issue or event, and plan and conduct an investigation (ACHES043)
  - Gather relevant and reliable data and information from a range of digital, online and print sources (ACHES044)

	<ul style="list-style-type: none"> <li>— Sub-strand: Interpretation and analysis <ul style="list-style-type: none"> <li>○ Analyse data and information in different formats to explain cause-and-effect relationships, make predictions and illustrate alternative perspectives (ACHES045)</li> </ul> </li> <li>— Sub-strand: Economic reasoning, decision-making and application <ul style="list-style-type: none"> <li>○ Generate a range of viable options in response to an economic or business issue or event, use cost-benefit analysis and appropriate criteria to recommend and justify a course of action and predict the potential consequences of the proposed action (ACHES046)</li> <li>○ Apply economics and business knowledge, skills and concepts in familiar, new and hypothetical situations (ACHES047)</li> </ul> </li> <li>— Sub-strand: Communication and reflection <ul style="list-style-type: none"> <li>○ Present reasoned arguments and evidence-based conclusions in a range of appropriate formats using economics and business conventions, language and concepts (ACHES048)</li> <li>○ Reflect on the intended and unintended consequences of economic and business decisions (ACHES049)</li> </ul> </li> </ul>
	<p><b>Achievement standards</b></p> <p><b>By the end of Year 9, students</b> explain the role of the Australian economy in allocating and distributing resources, and <b>analyse the interdependence of participants in the global economy. They explain the importance of managing financial risks and rewards and analyse the different strategies that may be used.</b> They explain why businesses seek to create a competitive advantage, including through innovation, and evaluate the strategies that may be used. <b>Students analyse the roles and responsibilities of participants in the workplace.</b></p> <p><b>When researching, students develop questions</b> and simple hypotheses to frame an investigation of an economic or business issue. <b>They gather and analyse relevant data and information from different sources to answer questions,</b> identify trends and explain relationships. <b>Students generate alternative responses to an issue and use cost-benefit analysis and appropriate criteria to propose a course of action. They apply economics and business knowledge, skills and concepts to familiar, unfamiliar and hypothetical problems. Students develop and present evidence-based conclusions and reasoned arguments using appropriate texts, subject-specific language and concepts. They analyse the effects of economic and business decisions and the potential consequences of alternative actions.</b></p>
<p><b>Work Studies</b></p>	<p><b>Content descriptions</b></p> <ul style="list-style-type: none"> <li>▶ <b>Strand: Skills for learning and work</b> <ul style="list-style-type: none"> <li>— Sub-strand: Entrepreneurial behaviours <ul style="list-style-type: none"> <li>○ Explain how the application of entrepreneurial behaviours can address a range of work and community challenges and provide benefits personally and to the community (ACWSCL011)</li> </ul> </li> </ul> </li> <li>▶ <b>Strand: Career and life design</b> <ul style="list-style-type: none"> <li>— Sub-strand: Career development and management <ul style="list-style-type: none"> <li>○ Source career information and resources (ACWSCL014)</li> </ul> </li> </ul> </li> </ul>

- Sub-strand: The nature of work
  - Describe the nature of work in Australia and the implications for current and future work opportunities (ACWSCL015)
- Sub-strand: Gaining and keeping work
  - Identify the importance of rights and responsibilities for employers and workers (ACWSCL019)

### Achievement standards

**By the end of Year 9 students** understand the importance and components of self-directed and lifelong learning. They **investigate the skills and personal qualities associated with a range of occupations** and explain the importance of teamwork and collaboration. They identify the types and purposes of communication in workplaces, including social media. Students understand entrepreneurial behaviours and their importance for work and in addressing a range of challenges. They explain the relationships between self-awareness and career planning resources. They investigate the changes occurring in work, workplaces and work-related relationships and the factors contributing to the changes. They identify opportunities associated with these changes. Students identify the contribution of diverse cultures to work and workplaces. They describe formal and informal recruitment processes.

Students plan and implement strategies to improve their learning and strengthen their individual learning skills. **Students research and analyse information**, organise teams, and communicate effectively **using appropriate types of communications in a given context. They propose explanations and predict outcomes.** Students practise entrepreneurial skills and attributes and propose actions in response to identified work and community challenges. **They research and filter relevant career information resources. Students create career scenarios** and identify the skills to manage career transitions. **Students collect and evaluate data and information to draw conclusions about changes to work arrangements and their potential impact on their future. Students synthesise data and information to form reasoned conclusions. Students present their findings and explanations.**

### General capabilities

Typically, by the end of Year 10, students:

#### Literacy

- ▶ navigate, read and view a wide range of more demanding subject-specific texts with an extensive range of graphic representations
- ▶ interpret and evaluate information within and between texts, comparing and contrasting information using comprehension strategies
- ▶ use pair, group and class discussions and formal and informal debates as learning tools to explore ideas, compare solutions, evaluate information and ideas, refine opinions and arguments in preparation for creating texts
- ▶ plan, research, rehearse and deliver presentations on more complex issues and learning area topics, combining visual and multimodal elements creatively to present ideas and information and support opinions and engage and persuade an audience
- ▶ use comprehensive knowledge of the structure and features of learning area texts to comprehend and compose complex texts in innovative ways, using conventions for citing others
- ▶ use language that indirectly expresses opinions and constructs representations of people and events, and consider expressed and implied

	judgment
<b>Numeracy</b>	<ul style="list-style-type: none"> <li>▶ solve and model problems involving complex data by estimating and calculating using a variety of efficient mental, written and digital strategies</li> <li>▶ evaluate financial plans to support specific financial goals</li> <li>▶ explain how the practical application of patterns can be used to identify trends</li> <li>▶ illustrate and order relationships for fractions, decimals, percentages, ratios and rates</li> <li>▶ solve problems involving fractions, decimals, percentages, ratios and rates</li> <li>▶ evaluate media statistics and trends by linking claims to data displays, statistics and representative data</li> </ul>
<b>ICT</b>	<ul style="list-style-type: none"> <li>▶ select and use a range of ICT independently and collaboratively, analyse information to frame questions and plan search strategies or data generation</li> <li>▶ use advanced search tools and techniques or simulations and digital models to locate or generate precise data and information that supports the development of new understandings</li> <li>▶ develop and use criteria to systematically to evaluate the quality, suitability and credibility of located data or information and source</li> <li>▶ select and use ICT to articulate ideas and concepts, and plan the development of complex solutions</li> <li>▶ design, modify and manage complex digital solutions, or multimodal creative outputs or data transformations for a range of audiences and purposes</li> <li>▶ select and use a range of ICT tools efficiently and safely to share and exchange information, and to collaboratively and purposefully construct knowledge</li> </ul>
<b>Critical and Creative Thinking</b>	<ul style="list-style-type: none"> <li>▶ pose questions to critically analyse complex issues and abstract ideas</li> <li>▶ clarify complex information and ideas drawn from a range of sources</li> <li>▶ critically analyse independently sourced information to determine bias and reliability</li> <li>▶ assess risks and explain contingencies, taking account of a range of perspectives, when seeking solutions and putting complex ideas into action</li> <li>▶ balance rationale and irrational components of a complex or ambiguous problem to evaluate evidence</li> <li>▶ use logical and abstract thinking to analyse and synthesise complex information to inform a course of action</li> </ul>
<b>Personal and Social Capability</b>	<ul style="list-style-type: none"> <li>▶ assess their strengths and challenges and devise personally appropriate strategies to achieve future success</li> <li>▶ critique their ability to devise and enact strategies for working in diverse teams, drawing on the skills and contributions of team members to complete complex tasks</li> </ul>



### Ethical Understanding

- ▶ critique generalised statements about ethical concepts
- ▶ distinguish between the ethical and non-ethical dimensions of complex issues
- ▶ evaluate diverse perceptions and ethical bases of action in complex contexts

### Cross-curriculum priorities

NA

### Proficiency strands

#### ▶ **Understanding**

- Students understand simple interest and some contexts in which interest is paid. Students understand direct proportionality by encountering practical contexts in which quantities are in direct proportion, and other contexts in which they are not.

#### ▶ **Fluency**

- Students perform calculations to find simple interest, use a spreadsheet to find the mean, median and range of a sample, and derive the equations of straight lines.

#### ▶ **Problem Solving**

- Students solve a range of mathematical problems in financial contexts and investigate an issue by analysing data from secondary sources.

#### ▶ **Reasoning**

- Students draw conclusions based on statistical information, identify considerations in making mathematical comparisons related to practical contexts and consider reasons that certain statistical and numerical results might occur.

### Diversity of learners

The Australian Curriculum is based on the assumptions that each student can learn and that the needs of every student are important. These needs are shaped by individual learning histories and abilities as well as personal, cultural and language backgrounds, and socio-economic factors. Teachers may adapt or plan additional learning activities depending on the multiple, diverse, and changing needs of their students

### National Consumer and Financial Literacy Framework

*(Note: the student learnings in the National Consumer and Financial Literacy Framework are divided into, and are applicable over, bands covering two chronological years.)*

Dimension	Student learnings by the end of Year 10
<b>Knowledge and understanding</b>	<ul style="list-style-type: none"><li>▶ Identify and explain strategies to manage personal finances</li><li>▶ Explain the different ways in which people are paid including wages, salaries, commissions, self-employment and government benefits</li><li>▶ Explain the various factors that may impact on achieving personal financial goals</li><li>▶ Analyse and explain the range of factors affecting consumer choices</li><li>▶ Identify types of consumer and financial risks to individuals, families and the broader community and ways of managing them</li></ul>
<b>Competence</b>	<ul style="list-style-type: none"><li>▶ Analyse relevant information to make informed choices when purchasing goods and services and/or to resolve consumer choices</li></ul>

## Responsibility and enterprise

- ▶ Appreciate that there is often no one right answer in making financial decisions because these depend on individual circumstances, preferences and values
- ▶ Explain how, as financially active citizens, they fit into the broader economy and society through:
  - generating income and paying taxes
  - saving
  - spending
  - donating
  - investing
- ▶ Explain the role of banks and other deposit taking institutions (e.g. credit unions, building societies) in collecting deposits, pooling savings and lending them to individuals and business
- ▶ Demonstrate awareness that family and socio-cultural values and customs can influence consumer behaviour and financial decisions.

## Sequenced teaching and learning activities

Introducing	Resources
<p><b>Activity 1</b> <i>Obtaining money (90 minutes)</i></p> <p>This task encourages students to draw on their existing knowledge and the knowledge of others in their class and their peers. Students participate in a class discussion about ways of obtaining money. They compare and contrast different ways of getting paid and establish a set of criteria for their ideal part-time job. These criteria will be useful in the culminating activity (Activity 6).</p>	<ul style="list-style-type: none"> <li>▶ Computer access</li> <li>▶ Video: 'Money makes the world go around' (2:34) <a href="https://www.youtube.com/watch?v=YKmwgMD7i6I">https://www.youtube.com/watch?v=YKmwgMD7i6I</a></li> <li>▶ Video: 'Show me the money – MoneySmart Rookie' (6:50) <a href="https://www.youtube.com/watch?v=G9tHw8dN3bl">https://www.youtube.com/watch?v=G9tHw8dN3bl</a></li> <li>▶ Scootle Biz whiz dog walking business <a href="http://scootle.edu.au/ec/pin/RRQDUL?userid=38967">scootle.edu.au/ec/pin/RRQDUL?userid=38967</a></li> <li>▶ Scootle School canteen series <a href="http://scootle.edu.au/ec/viewing/R11639/pdf/school_canteen.pdf">scootle.edu.au/ec/viewing/R11639/pdf/school_canteen.pdf</a> <a href="http://scootle.edu.au/ec/viewing/L1927/index.html">scootle.edu.au/ec/viewing/L1927/index.html</a></li> <li>▶ Worksheet 1: Alistair compares jobs</li> </ul>
<p><b>Assessment: Diagnostic</b></p> <p>Teachers assess students' existing knowledge through a class discussion. The mathematical concepts required for the unit are assessed and revised as necessary.</p>	

Developing	Resources
<p><b>Activity 2</b> <i>How many hours do we work? (180 minutes)</i></p> <p>Students perform statistical analyses of a class survey and of Census at School data from their state or territory, and compare results. This task demonstrates the usefulness of a spreadsheet and encourages students to consider issues surrounding paid work.</p>	<ul style="list-style-type: none"> <li>▶ Computer access</li> <li>▶ Worksheet 3: Sell now or sell later?</li> <li>▶ Real estate websites</li> <li>▶ Australian Bureau of Statistics <a href="http://abs.gov.au">abs.gov.au</a></li> <li>▶ Online newspaper archives <a href="http://guides.slv.vic.gov.au/content.php?pid=142502&amp;sid=1545270">guides.slv.vic.gov.au/content.php?pid=142502&amp;sid=1545270</a></li> </ul>
<p><b>Activity 3</b> <i>Understanding inflation (60 minutes)</i></p> <p>Students investigate the way prices change over time. This practical context gives rise to a rich exploration of variables that change in direct proportion and variables that do not.</p>	<ul style="list-style-type: none"> <li>▶ Computer access to MoneySmart Teaching online interactive mobile phone activities and learning objects <a href="http://moneysmart.gov.au/teaching/teaching-resources/digital-activity-shopping-for-a-mobile">moneysmart.gov.au/teaching/teaching-resources/digital-activity-shopping-for-a-mobile</a></li> <li>▶ Worksheet 3: Sell now or later?</li> <li>▶ Website: <a href="http://realestate.com.au">realestate.com.au</a></li> <li>▶ Video: 'Teens and consumer issues –</li> </ul>

Developing	Resources
	MoneySmart Teaching' (5:09) <a href="https://www.youtube.com/watch?v=tw9SQNHXUKE">https://www.youtube.com/watch?v=tw9SQNHXUKE</a>
<p><b>Activity 4</b> How does inflation affect our decisions? (60 minutes)</p> <p>Students participate in a class discussion about the need to earn interest and what to consider when choosing a financial institution and product. Students compare savings options, considering interest rates and fees.</p>	<ul style="list-style-type: none"> <li>▶ Worksheet 4: Earning interest</li> <li>▶ Money Under 30 <a href="http://moneyunder30.com/how-banks-make-money">moneyunder30.com/how-banks-make-money</a></li> <li>▶ Guest speaker from financial institution</li> <li>▶ Additional questions involving simple interest calculations commonly found in textbooks</li> </ul>
<p><b>Assessment: Formative</b></p> <p>Collect 'Worksheet 4: Earning interest' to determine students' progress and further learning needs.</p>	
<p><b>Activity 5</b> Issues around paid work (60 minutes)</p> <p>Students investigate the issues surrounding paid work and the considerations and calculations involved in negotiating a pay increase.</p>	<ul style="list-style-type: none"> <li>▶ Computer access</li> <li>▶ Fair Work Ombudsman <a href="http://fairwork.gov.au">fairwork.gov.au</a></li> <li>▶ Office of Fair Trading for their state or territory <a href="http://accg.gov.au/contact-us/other-helpful-agencies/state-territory-consumer-protection-agencies">accg.gov.au/contact-us/other-helpful-agencies/state-territory-consumer-protection-agencies</a></li> <li>▶ Youth Central <a href="http://youthcentral.vic.gov.au/Jobs+%26+Careers/Career+profiles/">youthcentral.vic.gov.au/Jobs+%26+Careers/Career+profiles/</a></li> <li>▶ Video: 'Show me the money MoneySmart Rookie' (6:50) <a href="https://www.youtube.com/watch?v=G9tHw8dN3bl">https://www.youtube.com/watch?v=G9tHw8dN3bl</a></li> <li>▶ Worksheet 5: Alistair negotiates a pay rise</li> </ul>
Culminating	Resources
<p><b>Activity 6</b> How can I obtain money? (180 minutes)</p> <p>Students consider how they can obtain money in the short and medium term and provide financial advice to a friend.</p>	<ul style="list-style-type: none"> <li>▶ Completed student worksheets and notes taken during the unit</li> <li>▶ Criteria for ideal job from Activity 1</li> <li>▶ Worksheet 6: How can I obtain money?</li> <li>▶ Access to the internet or local newspapers to research jobs</li> </ul>
<p><b>Assessment: Summative</b></p> <p>This task is designed to assess students' grasp of the financial decision-making that has been modelled and investigated in this unit. Criteria for assessment are provided.</p>	

### Assessment rubric

This rubric aligns with Year 9 Australian Curriculum: Mathematics, which is the focus of this unit. Teachers may wish to expand to include other learning areas. This rubric is intended as a guide only. It can be modified to suit teachers' needs and to be integrated into existing assessment systems. Teachers may also wish to collect the worksheets as work samples for individual student folios.

Student's name: \_\_\_\_\_

Skill	Relevant content description(s)	Relevant activities and worksheets	Competent	Developing at level	Needs further development	Notes
The student can identify a linear relationship between two variables from the graph of a function, and then determine whether the variables are directly proportional	Solve problems involving direct proportion. Explore the relationship between graphs and equations corresponding to simple rate problems (ACMNA208)	Activity 1 Worksheet 1	The student correctly identifies a linear relationship by a straight line graph and determines proportionality by whether the graph, extended if necessary, passes through the origin	The student correctly identifies a linear relationship by a straight line graph but needs some assistance to determine proportionality using the position of the origin in relation to the graph	The student, with teacher guidance, identifies a linear relationship by a straight line graph, but has little success determining proportionality	
The student can identify direct proportion in real life contexts	See ACMNA208 above	Activity 3 Worksheet 3	The student correctly calculates the ratio (as a decimal) of item costs that rise in direct proportion, and uses it to estimate the cost of those items in other years	The student calculates the ratio (as a decimal) of item costs that rise in direct proportion, and uses it to estimate the cost of those items in other years. Some assistance is required with the method	The student requires teacher guidance and support to calculate and apply the ratio	
The student can calculate simple interest to assist financial decisions	Solve problems involving simple interest (ACMNA211)	Activity 4 Worksheet 4	The student fully justifies the best choice of financial institution and product by thoughtful	The student provides some valid justification of the best choice of financial institution and product by	The student requires teacher guidance and support to calculate simple interest and the inclusion of fees.	

Assessment rubric (cont)						
Skill	Relevant content description(s)	Relevant activities and worksheets	Competent	Developing at level	Needs further development	Notes
			consideration of all fees, information and accurate calculations involving simple interest	consideration of fees, information and calculations involving simple interest	The student makes little attempt to justify	
The student can write a linear equation to express one variable as a function of another	Sketch linear graphs using the coordinates of two points and solve linear equations (ACMNA215)	Activity 1 Worksheet 1	The student determines a linear rule from a table of values and describes it accurately using both words and algebra for a range of problems	The student determines a simple linear rule from a table of values and describes it using both words and algebra. The student requires some assistance to complete harder problems	The student requires teacher guidance and support to determine a simple linear rule from a table of values and to describe it using words and algebra	
The student can complete a table of values for a function and sketch the graph of the function by plotting the coordinates	See ACMNA215 above	Activity 1 Worksheet 1	The student calculates all values correctly and accurately sketches graphs for a range of functions. The student uses a suitable scale and includes details such as title and correctly labelled axes	The student calculates all values and any errors are corrected with little or no assistance. The student sketches graphs for a range of functions using a scale, but omits some detail	The student requires teacher guidance and support to calculate all values correctly, choose a scale, and sketch a detailed graph for a simple function	
The student can solve problems algebraically using a formula	See ACMNA215 above	Activity 1 Worksheet 1	The student solves for an unknown in an equation by correctly substituting values and backtracking. The student shows working to fully justify and test their solution	The student solves for an unknown in an equation by substituting values. The student shows some working to justify their solution. Errors are corrected with little or no assistance	The student requires teacher guidance and support to substitute values into an equation as a method of problem solving for an unknown	

## Assessment rubric (cont)

Skill	Relevant content description(s)	Relevant activities and worksheets	Competent	Developing at level	Needs further development	Notes
The student can collect data using a class survey	Identify everyday questions and issues involving at least one numerical and at least one categorical variable, and collect data directly and from secondary sources (ACMSP228)	Activity 2	The student uses concise and unambiguous questions to collect relevant data from an unbiased, suitably sized random sample	The student uses appropriate questions to collect relevant data from a random sample	The student uses questions to collect data from some students	
The student can collect data from online sources	See ACMSP228 above	Activity 2 Worksheet 2  Activity 3 Worksheet 3	The student independently follows all instructions and collects relevant and accurate data from a given website	The student requires assistance to follow some instructions in order to collect the required data from a given website	The student requires significant teacher guidance and support to follow instructions in order to collect data from a given website	
The student can research relevant data from direct and/or secondary sources	See ACMSP228 above	Activity 5 Worksheet 5	The student uses a variety of sources to accurately investigate, collate and analyse price increases. The student thoroughly researches advice for negotiating a pay increase and presents a well-developed, valid argument	The student uses a couple of sources to investigate, collate and analyse price increases. The student researches some useful advice for negotiating a pay increase and presents a reasonable argument	The student uses a source to investigate and collate price increases, but requires teacher guidance to analyse them. The student researches some advice for negotiating a pay increase but presents a vague argument	

Assessment rubric (cont)						
Skill	Relevant content description(s)	Relevant activities and worksheets	Competent	Developing at level	Needs further development	Notes
The student can analyse and compare data statistically	Compare data displays using mean, median and range to describe and interpret numerical data sets in terms of location (centre) and spread (ACMSP283)	Activity 2 Worksheet 2	The student accurately calculates mean, median and range, and uses a clear understanding of them to analyse and compare their data with that of other class members	The student calculates mean, median and range with some assistance, and uses a developing understanding of them to analyse and compare their data with that of other class members	The student requires significant teacher guidance and support to calculate mean, median and range, and has little success using them to analyse and compare data	
The student can describe and explore ways of obtaining money and can provide financial advice to a friend	Suggested Summative Assessment ACMNA208 ACMNA211 ACMNA215 ACMSP228 ACMSP283	Activity 6 Worksheet 6 (includes assessment criteria)	Part 1: The student gives a clear explanation of the advantages, disadvantages and other considerations  Part 2: The student provides correct calculations with all working and reasoning shown  Part 3 Q1: The student clearly explains the reasons for choosing the job, and the pay and conditions of the job have been accurately researched	Part 1: The student gives a satisfactory explanation of the advantages, disadvantages and other considerations  Part 2: The student provides calculations with some errors, but most working and some reasoning shown  Part 3 Q1: The student satisfactorily explains the reasons for choosing the job, and the pay and conditions of the job have been adequately researched	Part 1: The student gives a partial explanation of the advantages, disadvantages and other considerations  Part 2: The student provides some calculations with conceptual errors and little working or reasoning shown  Part 3 Q1: The student explains one or two reasons for choosing the job, but research about the pay and conditions of the job is limited or not evident	



Assessment rubric (cont)						
Skill	Relevant content description(s)	Relevant activities and worksheets	Competent	Developing at level	Needs further development	Notes
			Part 3 Q2: The student gives appropriate advice, including good sources of additional information. The student thoughtfully considers various options and clearly explains the advantages and disadvantages of various options	Part 3 Q2: The student gives some appropriate advice, including a few sources of additional information. The student considers various options and satisfactorily explains some of their advantages and disadvantages	Part 3 Q2: The student gives limited and vague advice with little consideration and explanation of the advantages and disadvantages of various options	

# Teacher notes

## Activity 1

### Obtaining money (90 minutes)

Introducing the unit:

- ▶ Use the video resource 'Money makes the world go around' (2:34) <https://www.youtube.com/watch?v=YKmwgMD7i6I> as a stimulus to engage students in realising that learning about consumer and financial literacy is important. This unit of work will look at one aspect of this topic – ways of obtaining money.
- ▶ Students assess the advantages and disadvantages of different ways of obtaining money, including different ways of getting paid. A scenario will be presented at the beginning of each task. Students will investigate the number of hours per week that Year 9 students work, perform simple interest calculations, calculate earnings based on rates of pay and commission, and investigate the way that prices change over time.
- ▶ Students should retain all their completed worksheets and notes from this unit to be used in the final assessment task in Activity 6.

### Scenario

Alistair and Bonnie are Year 9 students who have been friends since they were in primary school. Bonnie always knows when Alistair is worried about something.

'What's up, Alistair?'

'Have you thought about the type of job you would like?' Bonnie asked.

'That's the problem. I'm not really sure what job I want. There seems to be so many things to consider. How about you Bonnie, will you be looking for a job?'

'Not yet – I don't have time. But there *are* other ways of obtaining money.'

- ▶ As a class, brainstorm different ways of obtaining money, e.g. winning it, finding it, earning it, investing it.
- ▶ Identify any gaps in student's knowledge and suggest any alternative ways that have not been mentioned such as:
  - commission
  - earning a salary
  - earning a wage
  - piecework (when someone is paid per item produced or per item processed)
  - interest on investments
  - selling something you own or have produced
  - government payments

- allowances
  - inheritance
  - running your own business
  - providing a service or a product.
- ▶ Think/Pair/Share: Explore the different ways that people can get money.
- When working:
    - Are all workers paid per hour?
    - What are some other ways that people get income? Consider wages, salaries, bonuses, commissions. Students explore the differences between these terms.
  - Can you think of a time when your family or a friend obtained money in some way?
  - What are some situations where people receive money on a regular basis?
  - What are some situations where people receive money as a one-off payment?
- ▶ Group discussion: Review student responses from the Think/Pair/Share activity above, and ensure student understanding of the terms used to describe income. What are the advantages and disadvantages of these different ways of obtaining money?
- ▶ Invite students from Years 10, 11 and/or 12 to form an 'expert' panel. The class will ask this panel questions about part-time work. Students could brainstorm a series of questions prior to this panel session.
- Some discussion points include:
    - types of part-time work
    - payment for part-time work
    - pros and cons of students working part-time.
- ▶ Watch the Rookie video 'Show me the money – MoneySmart Rookie' (6:50)  
<https://www.youtube.com/watch?v=G9tHw8dN3bl>

### Scenario

Alistair is considering getting a job. He needs time for school, homework, helping out at home and seeing his friends, so he will be working part-time. He begins to investigate part-time work.

- ▶ Class discussion:
- What are some common situations where an employee earns a commission?
  - Why is it important for customers to be aware that an employee they are dealing with might be earning a commission?
  - What are the benefits to society and to the economy when someone works for pay?
  - Prompt students to devise a set of criteria for their own ideal part-time job (Note: these criteria will be referred to in Activity 6). Students should consider pay, hours, type of work and distance from home.
  - Students could also consider setting up their own small business, e.g. walking people's dogs, washing cars, etc. There are many online resources that can help students with this consideration; the following websites are good examples:
    - the Biz Whiz series [scottle.edu.au/ec/pin/RRQDUL?userid=38967](http://scottle.edu.au/ec/pin/RRQDUL?userid=38967), and
    - the School Canteen series [scottle.edu.au/ec/viewing/L1927/index.html](http://scottle.edu.au/ec/viewing/L1927/index.html)

► Students complete **Worksheet 1: Alistair compares jobs**

Concepts in the worksheet include:

- writing algebraic formulae
  - linear graphing
  - direct proportionality.
- Assess students' understanding of ratio (including the representation of a ratio using a decimal number), percentage increase and decrease, and finding the mean, median and range of a sample. Revision of these concepts as required, will assist students with the remaining task.

## Activity 2

### How many hours do we work? (180 minutes)

#### Scenario

When Alistair told his mother that he would like to get a job, she thought he might be too young.

'What about your homework?' she asked.

'I'll make sure I get all my homework done,' Alistair reassured her.

'I didn't work at your age, and I don't think you should either,' she said.

'Dad did, and lots of kids do some part-time work, including some of my friends,' Alistair answered.

'Lots of kids? Are you sure that lots of kids work?' asked Mum.

'I will do some digging round and prove to you that kids my age do have part-time jobs. Will you let me get a part-time job, then?' Alistair asked.

'We'll see,' mumbled Mum.

- Conduct a class survey.
- Discuss the definition of a 'population' in the context of collecting data, and the difference between a census and a sample.
  - Explain to the class that they will be collecting data from amongst themselves about the number of students that work and how many hours of paid work they do each week. (Note: if not enough students have part-time jobs, a Year 10, 11 or 12 class could be used for collecting this data).
  - Students consider how this data could be collected, for example:
    - Should all students be surveyed, even if they don't work? How would this decision affect the accuracy and relevance of the survey?
    - If some students are not in class on the survey day, how could that affect the results?
    - How can the survey question(s) be defined, so that there is no ambiguity?
  - Collect the data and ask students to find the mean, median and range.
  - Model these calculations on the board, so that students can check their solutions.

- Discuss any discrepancy between the median and mean.
- ▶ Would students expect their class data to reflect other Year 9 classes in their state or territory? Why or why not?

Spreadsheets are a useful tool for performing calculations on which financial decision-making can be based. The use of spreadsheets to underpin financial decision-making is explored in ASIC's MoneySmart Teaching Year 10 Mathematics Unit – Reaching goals: What's involved? In this current activity, students become familiar with the basic use of a spreadsheet, including statistical calculations.

- ▶ If necessary, revise the basic use of a spreadsheet including:
  - the way that individual cells are referenced (e.g. "A1")
  - the way that blocks of cells are referenced (e.g. "A1:C5")
  - the use of formulae, including the "\*" and "/" symbols for multiplication and division respectively (e.g. "=A2/A1")
  - The use of built-in formulae (e.g. "=MAX(A1:A10)")
- ▶ Internet access is required for students to complete **Worksheet 2: How many hours do other students work?** Data by region website (<http://stat.abs.gov.au/itt/r.jsp?databyregion>) contains data for thousands of regions across Australia. Worksheet 2 requires students to analyse this data in Microsoft Excel.
- ▶ After completion of **Worksheet 2: How many hours do other students work?**, discuss with the class any differences between the class data and the data from their state or territory.
- ▶ Members of the class would have calculated different results because each pair was working with a different random sample. As a class, discuss:
  - variability of results when using random samples
  - choosing a large enough sample size to obtain accurate statistics
  - the awareness of the importance of the sample size when making a judgement based on statistics.
- ▶ Discuss advertisements that present statistics but do not reveal the sample size.

### Activity in pairs

- ▶ Role-play a conversation between Alistair and his mother.
  - In the conversation, Alistair tries to convince his mother that he is old enough to start part-time work.
  - In the conversation, include the statistical results you found from the Census at School data.
  - Decide if these results support Alistair's view, his mother's view, or neither.

### Activity 3

#### Understanding inflation (60 minutes)

##### Scenario

Bonnie's dad has been wondering if she should sell her bicycle as a way of making some money.

'You and Alistair seem to be trying to earn some money and that bicycle is just sitting in the garage. You're not even riding it,' he said.

Bonnie replied, 'Well, I guess I can always sell it in a few years. It's already old, so I don't think a few more years would make much difference to the money I would get for it.'

'I think you're forgetting about inflation,' her dad replied.

- ▶ Class discussion:
  - Have students heard of inflation? If so, do they know what it means? Can they remember a context in which they have heard the word?
  - Have students noticed any prices that have changed in the past few years? Are there any price increases or decreases that they have heard people discussing (e.g. on the news)?
- ▶ Students work in pairs to complete **Worksheet 3: Sell now or sell later?**
- ▶ After completing **Worksheet 3: Sell now or sell later?**, discuss with class:
  - answers to question 6 (finding examples of prices from previous decades)
  - situations where prices might fall, and reasons this might happen.

### Activity 4

#### How does inflation affect our decisions? (60 minutes)

##### Scenario

'You were right, Dad. It makes more sense to sell my bicycle now than later, so I sold it for \$100,' Bonnie told her dad.

'So, where is the \$100 now?' asked Dad.

'Right here,' Bonnie said, pointing to her wallet.

Bonnie's dad wasn't sure that she had fully understood the effects of inflation.

'If it's in your wallet, aren't you more likely to spend it? Even if you don't spend it, and it stays in your wallet, in a few years it will still be only \$100.'

- ▶ Class discussion:
  - Why is Bonnie's dad concerned that she will still have only \$100 in a few years' time?
  - What can Bonnie do to make sure that her money doesn't lose value?

- ▶ Students complete **Worksheet 4: Earning interest.**
- ▶ Collect this worksheet to see how well students have understood the concepts.
- ▶ Provide students with additional questions involving simple interest calculations commonly found in textbooks.
- ▶ Activity in pairs: Students research the answers to the following questions. If feasible, consider inviting a guest speaker from a financial institution to talk to the students.
  - What do financial institutions do with the money that is placed in savings accounts?
  - How do these institutions make a profit?
 The following link may help with answers: [moneyunder30.com/how-banks-make-money](http://moneyunder30.com/how-banks-make-money).
- ▶ Class discussion:
  - Discuss students' answers to the two questions above.
  - Why would financial institutions be particularly interested in attracting young customers?
  - What strategies do some of these institutions use to attract young customers?
  - How do your answers to the last two questions affect your financial decision-making now and in the future?
- ▶ It is common for customers to join a bank early in life and never consider switching. A good financial strategy is to regularly review both your choice of financial institution and the savings options that you have chosen from that institution. Many financial institutions do not alert customers to alternative savings options that would be more suitable for them.

## Activity 5

### Issues around paid work (60 minutes)

- ▶ Class discussion or discussion in groups:
  - What concerns might some people have when they start paid work?
  - What issues have students in the class faced if they have already started working?
  - How can people find out if they are being paid fairly?
  - What can people do if they are treated and/or paid unfairly at work?
- ▶ Ask students to explore the Fair Work Ombudsman website ([fairwork.gov.au](http://fairwork.gov.au)), and identify areas of the website that help people find out if they are being paid and treated fairly at work.
- ▶ As homework, students ask a parent or relative for a list of things that are useful to know in their first few years of paid work. Alternatively, students could research this information online, for example, from the website of the Office of Fair Trading in their state or territory ([acc.gov.au/contact-us/other-helpful-agencies/state-territory-consumer-protection-agencies](http://acc.gov.au/contact-us/other-helpful-agencies/state-territory-consumer-protection-agencies)), or other sites such as [youthcentral.vic.gov.au/Jobs+%26+Careers/](http://youthcentral.vic.gov.au/Jobs+%26+Careers/).
- ▶ Students bring their lists to class to discuss.

### Scenario

After working for his employer for over two years, Alistair's pay has not increased. Alistair feels that he deserves a pay rise partly because the cost of living has increased.

- ▶ Students complete **Worksheet 5: Alistair negotiates a pay increase.**

## Activity 6

### How can I obtain money? (180 minutes)

- ▶ Students complete **Worksheet 6: How can I obtain money?** as a summative assessment of this unit.
- ▶ Instruct students to hand in the first and third parts of the assessment. The second part could be presented to the class to encourage a productive class discussion about different types of jobs and their suitability for different types of people.

### Notes

Resources to support this unit can be found at MoneySmart Teaching ([moneysmart.gov.au/teaching/teaching-resources/moneysmart-rookie-for-educators](https://moneysmart.gov.au/teaching/teaching-resources/moneysmart-rookie-for-educators)). These resources include Year 9 and 10 lesson plans mapped to the Australian curriculum, introductory videos and Interactive 'convo' activities allowing young people to practise important conversations with people they will need to deal with, such as real estate agents and salespeople. There are six topics in the MoneySmart Rookie suite:

- First car
- Credit and debt
- Mobile phone ownership
- Moving out of home
- Online financial transactions
- First job.



# Worksheets

Worksheet 1: Alistair compares jobs

1. Alistair is offered a job in a local fish and chip shop. The work involves preparing food and serving customers. He will be paid \$16 per hour, but will receive 25% more if he works on a Saturday and 75% more if he works on a Sunday.

a. How much does Alistair earn per hour:

i. on a weekday? \_\_\_\_\_

ii. on Saturday? \_\_\_\_\_

ii. on Sunday? \_\_\_\_\_

b. Calculate how much Alistair would earn in one week, if he worked:

i. for 12 hours, not on a Saturday or a Sunday.

\_\_\_\_\_

ii. for 12 hours, including 4 hours on a Saturday and none on a Sunday.

\_\_\_\_\_

iii. for 12 hours, including 4 hours on a Saturday and 4 hours on a Sunday.

\_\_\_\_\_

c. Suppose Alistair works only on weekdays.

i. Complete this table to show how much he would earn for the hours he works.

Hours Alistair works	0	1	2	3	4	5	6
Amount that Alistair earns (\$)							

ii. Using your table, write a formula for the amount of money that Alistair earns ( $e$ ) as a function of the number of hours he works ( $h$ ).

Worksheet 1: Alistair compares jobs (cont)

- iii. Sketch a graph showing the amount of money Alistair makes as a function of the hours he works.

Notice that the graph is a straight line through the origin. When we see this type of graph we say that the variables are **directly proportional**.

- d. Suppose Alistair's first 4 hours of work are always on a Sunday. Sometimes, he works extra weekday hours but he does not work on Saturdays.
- i. Using the information above, complete the table to show how much he would earn if he worked the following hours.

Hours Alistair works in one week	4	5	6	7	8	9	10	11	12
Amount that Alistair earns (\$)									

- ii. Using your table, write a formula for the amount of money that Alistair earns each week ( $e$ ) as a function of the number of hours he works ( $h$ ), where  $h$  is greater than or equal to 4.

---



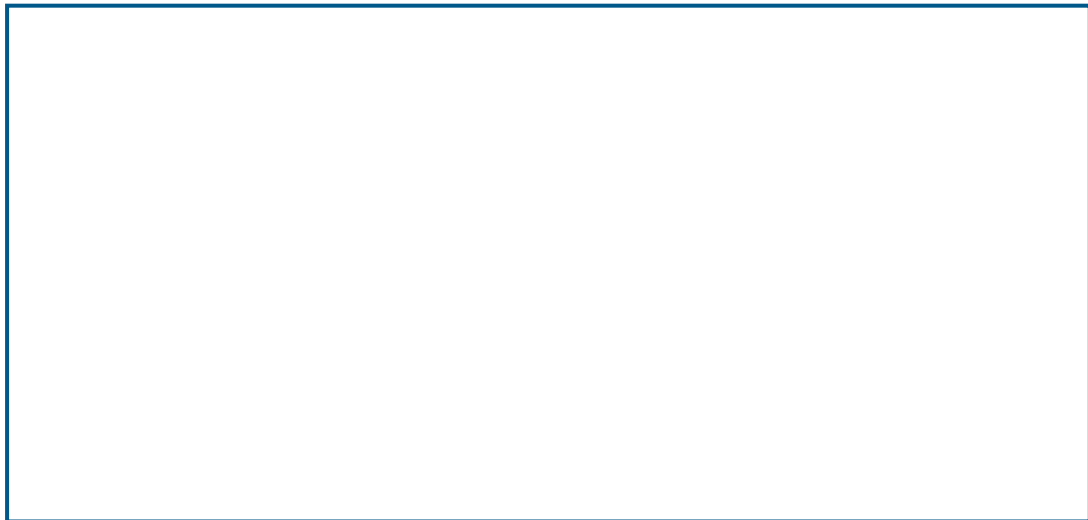
---



---

Worksheet 1: Alistair compares jobs (cont)

- iii. Sketch a graph showing the amount of money Alistair makes as a function of the hours he works.



Notice that the graph is a straight line, so there is a linear relationship between the variables. As the line does not pass through the origin (even if we extended the graph), this relationship is **not a direct proportionality**.

- 2. Alistair is offered another job that involves selling mobile phone plans. He is offered a base rate of \$10 per hour, but also receives a \$4 commission for each sale he makes. There are no penalty rates for working on the weekend. Alistair will usually be expected to work for a period of 4 hours.

- a. Why would an employer offer a commission for each sale?

---

---

---

---

Worksheet 1: Alistair compares jobs (cont)

b. Suppose Alistair works for a 4-hour period.

i. Complete the table to show how much he could earn:

Number of sales	0	1	2	3	4	5	6
Amount that Alistair earns (\$)							

ii. Sketch a graph showing the amount of money Alistair earns ( $e$ ) as a function of the number of sales he makes in a 4-hour period ( $s$ ).

iii. What type of relationship is shown by the graph? Is it a linear relationship? Are the variables directly proportional?

---



---



---



---

Worksheet 1: Alistair compares jobs (cont)

- iv. Using your table from part b, write a formula for the amount of money Alistair earns ( $e$ ) as a function of the number of sales he makes in a 4-hour period ( $s$ ).

---

---

---

---

- v. Use your formula from part e to find the amount of money Alistair would earn if he was able to make 12 sales during a 4-hour period.

---

---

---

---

- vi. Using your formula from part e, calculate the number of sales Alistair would need to make in a 4-hour period to earn \$100.

---

---

- vii. Alistair would like to compare this job with the job at the fish and chip shop, including a comparison of the money he can earn. What additional information would help him to make this comparison? How can he obtain this information?

---

---

---

---

Name: ..... Class: ..... Date: .....

## Worksheet 2: How many hours do other students work?

Work with a partner to calculate answers.

You are going to investigate how the data you collected in class compares to other Year 9 students in your state or territory.

The Census at School website ([abs.gov.au/censusatschool](http://abs.gov.au/censusatschool)) contains data for thousands of students across Australia. You will be downloading data collected from 30 randomly selected Year 9 students in your state or territory. The data that you download will be selected at random and will be different from the data downloaded by other members of your class.

1. Use a search engine to find the Census at School Random Sampler.
2. Read and accept the conditions of use.
3. Select the most recent year as the 'reference year'.
4. Choose 'numerical data' as the type of data.
5. Enter a sample size of 30.
6. Select your state or territory.
7. Select Year 9/select sex.
8. When you click 'Get Data Sample', you will be provided with the randomly selected data for 30 Year 9 students from your state or territory. In other words, the data you receive will be different from that received by other students in your class.
9. Click on the link next to 'Download data xls sample file', and accept the invitation to open an Excel spreadsheet.
10. The data we need is in column V. Select columns A to U (by clicking and dragging over the letters at the top of these columns), then right click the selection and hide these columns. Hide columns W to Z in the same way.
11. Expand column V so that you can see the whole heading. Remember that 30 students were selected at random. This column tells us how many hours of paid work they each do in a week.
12. Look down column V and type a zero in any cells that are missing data. We will assume that students who left this item blank on the census do not do paid work.  
**Make sure that every row up to and including row 31 has a number.**

Worksheet 2: How many hours do other students work? (cont)

13. Here is the formula for finding the median of the data. Type it into cell AB4.

`=MEDIAN(V2:V31)`

Notice that our data begins in cell V2 and ends in cell V31. Type "Median:" into cell AA4 to label this value.

- 14. In cell AB5 write a formula to find the total number of hours worked by these 30 students. *(Hint: Use the SUM formula.)* Type "Sum:" into cell AA5.
- 15. In cell AB6 write a formula that uses the sum in cell AB5 and find the mean of the data. *(Hint: Remember that your formula must start with an equals sign and use "/" for the division symbol.)* Label this result in cell AA6.
- 16. Compare the mean to the median. Which is greater? Looking at the data, can you explain why it is greater?
- 17. In cell AB7 write a formula to find the range of the data. Label this result in cell AA7.
- 18. Compare your results to those of the other students in your class. Remember that each class member used data from a different random sample.

a. How different were your medians, means and ranges?

---

---

---

b. 'Did any samples give a median of zero? Explain how this could be possible.

---

---

---



Name: ..... Class: ..... Date: .....

Worksheet 2: How many hours do other students work? (cont)

If you finish early, repeat this activity using a sample size of 100.

a. Did you notice any change in the mean and median? Explain.

---

---

---

---

b. 'When we choose a larger sample size, the range is more likely to increase than decrease'. Do you agree with this statement? Explain why or why not.

---

---

---

---

---

Name: ..... Class: ..... Date: .....

### Worksheet 3: Sell now or sell later – inflation?

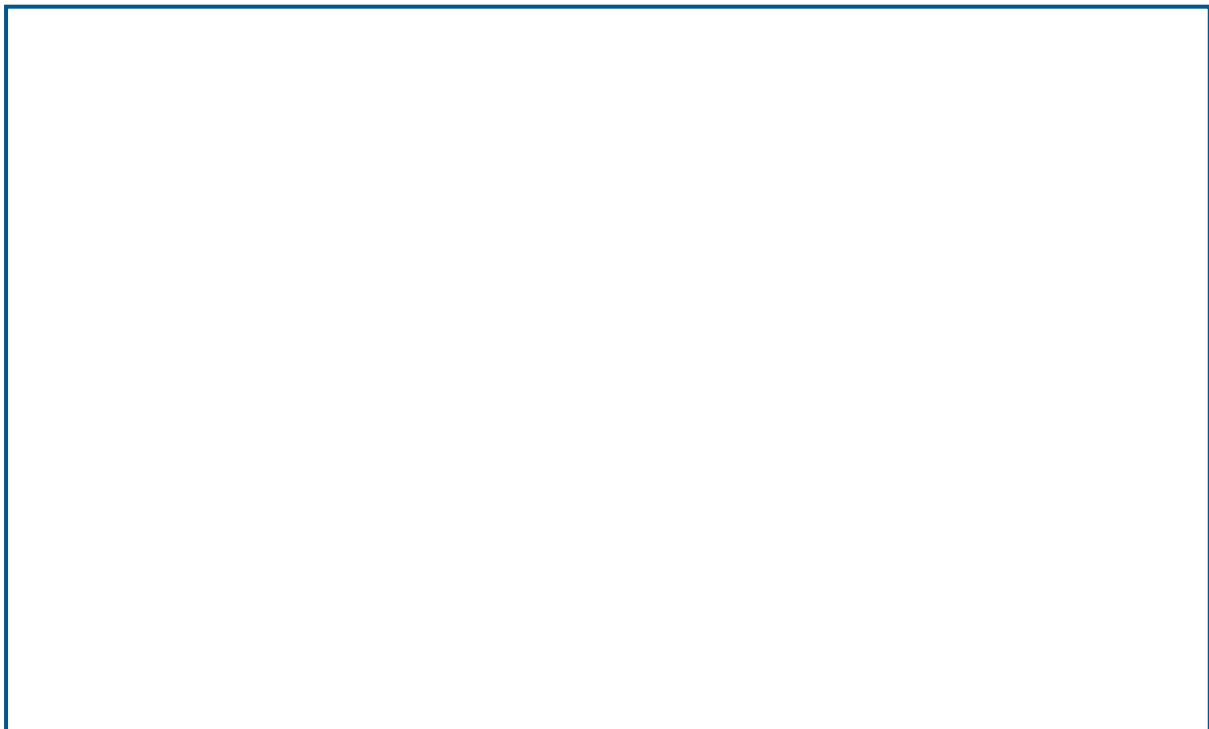
The following table shows how the price of an article has changed over time. Use the data from your state or territory capital to complete questions 1–3.

#### Cost (c) of a packet of biscuits (250 g)

Year	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra
2005	187	190	174	192	179	205	203	189
2006	198	200	182	201	185	208	207	198
2007	202	200	183	202	183	208	207	200
2008	228	226	229	229	228	229	234	229
2009	234	231	229	238	226	225	238	232
2010	237	233	229	234	242	231	252	240
2011	254	253	254	256	254	261	274	260

Source: Australian Bureau of Statistics. Average Retail Prices of Selected Items, Eight Capital Cities (2005, 2006, 2007, 2008, 2009, 2010 and 2011)

1. Draw a graph showing the cost of a packet of biscuits as a function of the year.



Worksheet 3: Sell now or sell later – inflation? (cont)

2. Suppose that someone bought 4 packets of biscuits in 2011. How many packets could they have bought for approximately the same price in 2005?

\_\_\_\_\_

3. In which year did the cost of a packet of biscuits increase the least? Can you think of a reason why the cost did not increase very much that year?

\_\_\_\_\_

4. Some costs rise in direct proportion. For example, the data in the table below relates to some prices in Sydney.

Year	Cost (c) of a packet of biscuits (250 g)	Cost (c) of breakfast cereal (corn-based, 525 g)
2005	187	319
2009	234	395

Source: Australian Bureau of Statistics. Average Retail Prices of Selected Items, Eight Capital Cities (2005 and 2009)

- a. Find the ratio of the cost of a packet of breakfast cereal to the cost of a packet of biscuits in 2005. Answer as a decimal, correct to one decimal place.

\_\_\_\_\_

- b. Find the ratio of the cost of a packet of breakfast cereal to the cost of a packet of biscuits in 2009. Answer as a decimal, correct to one decimal place.

\_\_\_\_\_

- c. Suppose that a packet of biscuits cost \$2.55 in 2011. What would you expect the cost of a packet of breakfast cereal to be?

\_\_\_\_\_

- d. In a certain year, the cost of a packet of breakfast cereal was \$3. What would you expect was the cost of a packet of biscuits?

\_\_\_\_\_

Worksheet 3: Sell now or sell later – inflation? (cont)

5. Some costs do not rise in direct proportion.

- a. Complete the table below by researching the median cost of apartments in your state or territory, or in your local area, in 2005, 2009 and 2011. You can search online for the median cost of an apartment, or try a real estate website such as [realestate.com.au](http://realestate.com.au). If the costs are reported by month, you could average these to find the approximate median cost for the year.

Year	Cost (\$) of a packet of biscuits (250g)	Median cost (\$) of an apartment
2005	1.87	
2009	2.34	
2011	2.54	

- b. Find the ratio of the cost of 10 000 packets of biscuits to the median cost of an apartment for these three years.

---



---



---

- c. Have these costs changed in direct proportion? Justify your answer.

---



---



---

6. Do your own research to find examples of costs that have increased over a period of at least ten years.

- a. Ask a parent or other adult about the cost of a bus ticket, movie ticket or newspaper in previous decades and compare those with the costs of these items today. If your parent or adult doesn't remember, try searching for the historical costs of other items on the Australian Bureau of Statistics website at [abs.gov.au/](http://abs.gov.au/)

---



---



---

Worksheet 3: Sell now or sell later – inflation? (cont)

- b. Use websites such as [guides.slv.vic.gov.au/content.php?pid=142502&sid=1545270](http://guides.slv.vic.gov.au/content.php?pid=142502&sid=1545270) to research online copies of newspapers from previous decades. Investigate both the cost of the newspaper and the cost of items that are advertised, and compare these to the cost today.

---

---

---

7. For at least one of the comparisons that you researched in question 6, find the percentage increase in the cost.

---

---

---

8. Bonnie has said that she can get the same price for her bicycle whether she sells it now or in a few years' time. Suppose this price is \$100. Explain why receiving \$100 now is worth more than receiving \$100 in a few years' time.

---

---

---

9. Make connections between the phrase 'cost of living' and the rising cost of goods and services.

---

---

---

Name: ..... Class: ..... Date: .....

## Worksheet 4: Earning interest

Bonnie is looking for a savings account in which to deposit \$100. She visits TyroBank, a bank in her local area. The bank offers a savings account with a simple interest rate of 4.5%. There is an account establishment fee of \$5, but there are no other fees.

### Worked examples

Suppose Bonnie pays the \$5 establishment fee and deposits the remaining \$95 into this bank account. How much interest would she earn over a period of 3 years?

Each year Bonnie earns 4.5% interest.

4.5% of \$95

$$= 0.045 \times 95$$

$$= 4.275$$

$$3 \times 4.275 = 12.825$$

*So, the interest Bonnie earns is \$12.85 (to the nearest 5 cents).*

How much money will Bonnie have in her account after 3 years?

After 3 years, Bonnie's account will contain her initial deposit (\$95) plus her interest (\$12.85).

$$95 + 12.85 = 107.85$$

*So, Bonnie's account will contain \$107.85 after 3 years.*

Worksheet 4: Earning interest (cont)

How much money would Bonnie have in her account after 3 years if she had started with \$2000 instead of \$100?

Bonnie needs to pay a \$5 establishment fee.

$$2000 - 5 = 1995$$

$$4.5\% \text{ of } \$1995$$

$$= 0.045 \times 1995$$

$$= 89.775$$

Each year Bonnie earns \$89.80 in interest (to the nearest 5 cents).

$$3 \times 89.90 = 269.40$$

*So, the interest Bonnie earns is \$269.40.*

Bonnie's account will contain her initial deposit (\$1995) and also her interest (\$269.40).

$$1995 + 269.40 = 2264.40$$

*So, Bonnie will have \$2264.40 in her account after 3 years.*

1. SalvoBank offers a savings account with a higher interest rate than TyroBank. The interest rate at SalvoBank is 5%. SalvoBank does not charge an establishment fee, but there is a monthly fee of \$1.

a. Suppose Bonnie deposits \$100 into an account at SalvoBank and leaves her money in this account for 3 years. How much interest will she earn?

---

---

---

b. Calculate the total of the monthly fees Bonnie will pay over the 3 years.

---

---

---

Worksheet 4: Earning interest (cont)

- c. How much money will Bonnie have in her account at SalvoBank at the end of the third year?

---

---

---

- d. How much money will Bonnie have in her account at SalvoBank at the end of the third year, if she started with \$2000 instead of \$100?

---

---

---

Bonnie brought home some information about the savings accounts from both banks to show her mum.

Bonnie’s mum wondered if there was a better option for Bonnie, since Bonnie planned to save this money for at least 3 years. She suggested Bonnie go back to the banks and ask what other options are available.

- 2. Bonnie returned to the banks to enquire about term deposits. Both banks offer a 3-year term deposit with a fixed simple interest rate of 8%. TyroBank requires an establishment fee of \$5, which would leave Bonnie with \$95 to put into her term deposit. SalvoBank does not require an establishment fee, but charges a fee of \$5 when the account is closed.

- a. Search online for the definition of a ‘term deposit’.

---

---

---



Worksheet 4: Earning interest (cont)

b. What are the advantages and disadvantages of term deposits over regular savings accounts?

---

---

---

c. Both banks offer the same interest rate and charge \$5 fees. Explain why SalvoBank is the better option.

---

---

---

d. Find how much money Bonnie will have after 3 years if she pursues each of these options, starting with \$100.

---

---

---

e. Find how much money Bonnie will have after 3 years if she pursues each of these options, but starts with \$2000 instead of \$100.

---

---

---

Worksheet 5: Alistair negotiates a pay rise

1. After working for his employer for over 2 years, Alistair’s pay has not increased. Research how prices have changed over the past 2 years.

a. You could:

- search through online catalogues
- speak to your parents or another adult about costs that have changed
- ask service providers in your local area how their prices have changed in the past 2 years
- use the ABS website ([abs.gov.au](http://abs.gov.au)) to research the costs of specific items.

For at least three items, record the current cost and the cost 2 years ago.

Item name	Current cost	Cost 2 years ago
1.		
2.		
3.		

b. Work with a partner, and collate your findings. Find the percentage increase for each of the items you investigated over the 2-year period, and then find the average of these percentage increases.

Item name	Current cost	Cost 2 years ago	% increase	Average % increase
1.				
2.				
3.				



Worksheet 6: How can I obtain money?

This assessment task has **three parts**. The criteria you need to address are listed at the end of this worksheet.

You will hand in part 1 and part 3. Your answers to part 2 will be needed for a class discussion.

**Part 1**

1. In this unit, we have considered ways of obtaining money. Choose **one** action that could help you obtain money.

a. Describe this action and answer the following questions:

b. What are the advantages of taking this action?

---

---

---

---

c. Are there any disadvantages? If so, what are they?

---

---

---

---

d. What other considerations are important to help you decide whether or not to take this action?

---

---

---

---

## Worksheet 6: How can I obtain money? (cont)

### Part 2 – For presentation to class and for discussion

Think about your answers to Part 1. How much money would you expect to obtain? Support your answer with some calculations. See the examples below of actions you might have considered and ways of estimating the money you might obtain.

- ▶ If you are considering selling something:
  - find out what similar items have sold for, and find the average of these selling prices
  - find out how much the item would cost if it was bought firsthand. What percentage of this cost would you be able to sell the item for?
- ▶ If you are considering investing in a savings account:
  - find out (from a financial institution) how much interest you could expect to earn in the first year
  - calculate the simple interest rate that would provide this much interest.
- ▶ If you are considering getting a job:
  - calculate how much you would expect to earn in the next 6 months. Make sure that you consider overtime or penalty rates.
- ▶ If you are considering a different way of obtaining money:
  - discuss with your teacher the types of calculations that you could provide as part of this assessment.

In the presentation of your response, include your calculations with full mathematical working, including any spreadsheets or graphs you may have used.





Name: ..... Class: ..... Date: .....

## Worksheet 6: How can I obtain money? (cont)

### Criteria for assessment:

#### Part 1:

- ▶ The advantages, disadvantages and other considerations are explained clearly.

#### Part 2:

- ▶ Correct calculations are provided, with working and reasoning shown.
- ▶ The reasons for choosing the job are explained clearly.
- ▶ The pay and conditions of the job have been accurately researched.

#### Part 3:

- ▶ Appropriate advice has been given including good sources of additional information.
- ▶ The advantages and disadvantages of various options have been considered and explained.



# Solutions

## Worksheet 1

1. a. i. \$16

ii.  $\$16 + 25\% = \$20$

iii.  $\$16 + 75\% = \$28$

b. i.  $12 \times \$16 = \$192$

ii.  $8 \times \$16 + 4 \times \$20 = \$208$

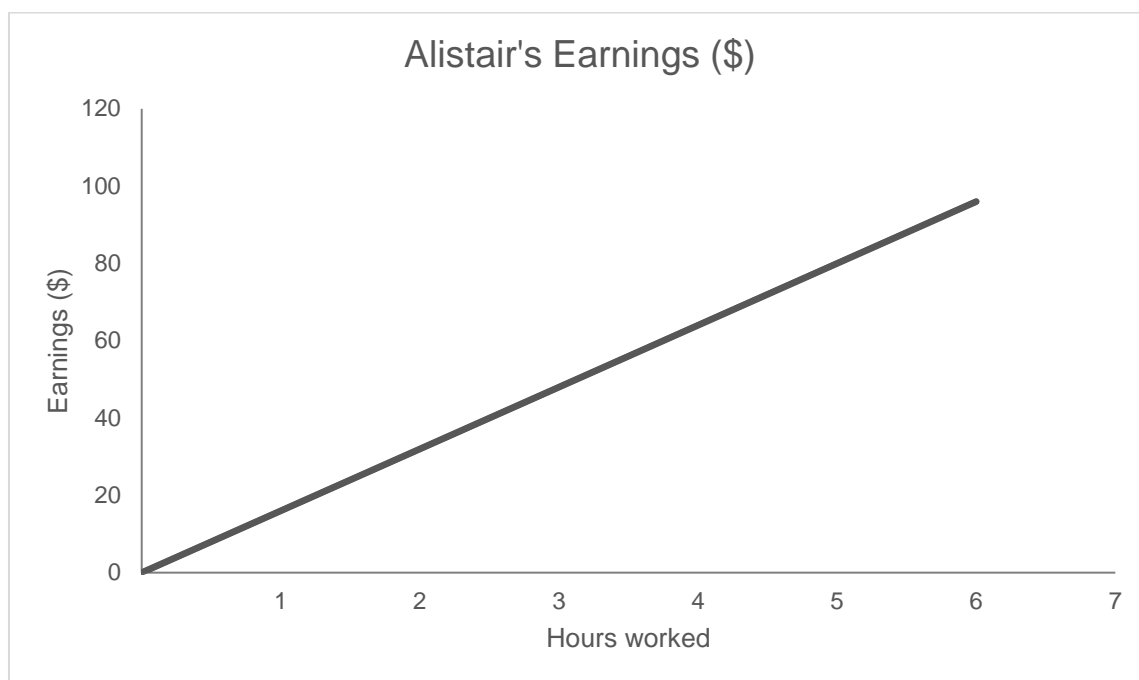
iii.  $4 \times \$16 + 4 \times \$20 + 4 \times \$28 = \$256$

c. i.

Hours Alistair works	0	1	2	3	4	5	6
Amount that Alistair earns (\$)	0	16	32	48	64	80	96

ii.  $e = 16h$

iii.

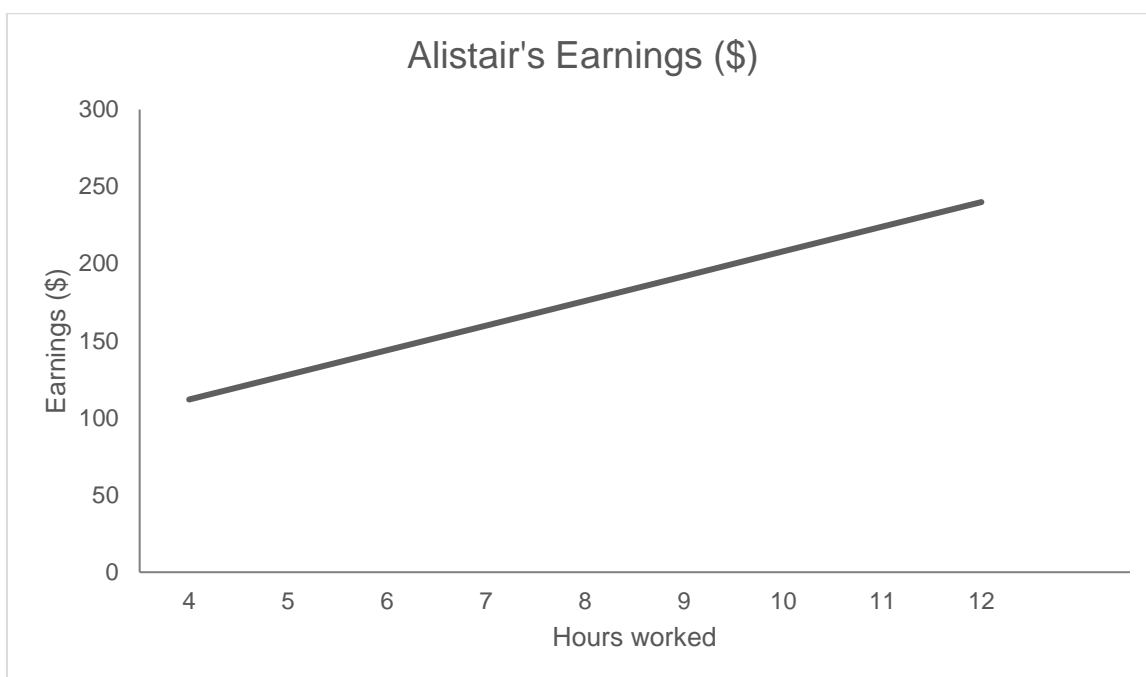


d. i.

Hours Alistair works in one week	4	5	6	7	8	9	10	11	12
Amount that Alistair earns (\$)	112	128	144	160	176	192	208	224	240

ii.  $e = 28 \times 4 + 16 \times (h - 4)$   
 So,  $e = 112 + 16(h - 4)$

iii.



2. a. Commissions are an incentive to increase sales

b. i.

Number of sales	0	1	2	3	4	5	6
Amount that Alistair earns (\$)	40	44	48	52	56	60	64

ii..



iii.. The graph shows a linear relationship, but the variables are not directly proportional because the graph does not pass through the origin

iv.  $e = 40 + 4s$

v.  $e = 40 + 4 \times 12 = \$88$

vi.  $100 = 40 + 4 \times s$

So,  $4 \times s = 60$

Therefore, Alistair would need to make 15 sales

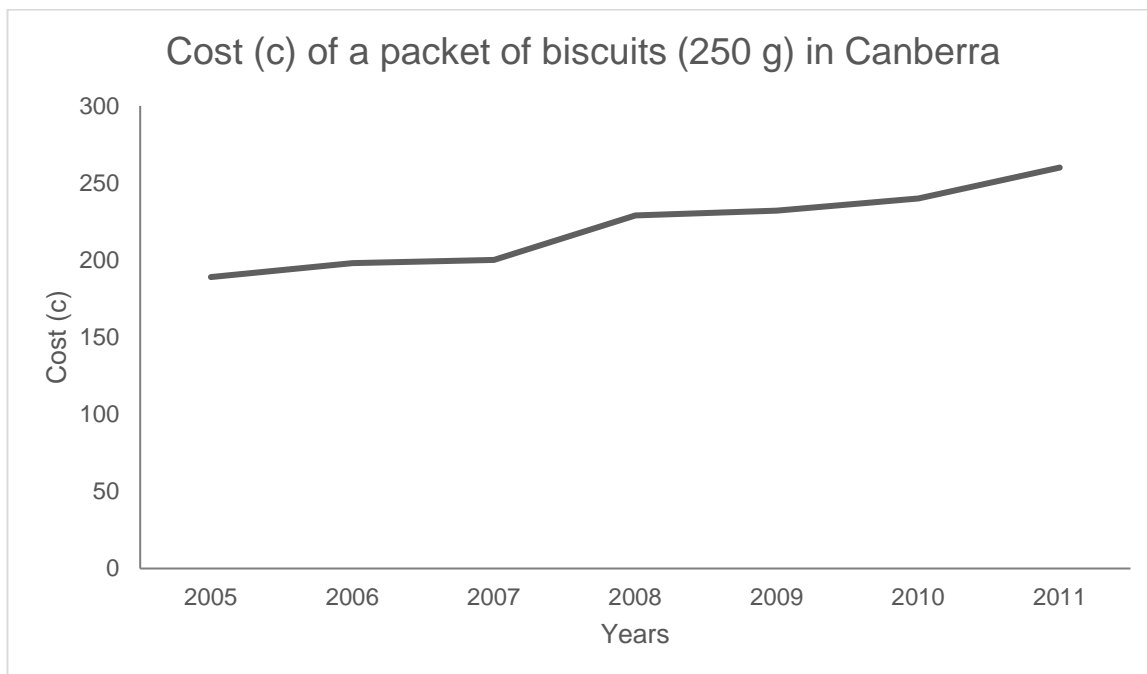
vii. Alistair could go to the Australian Government website [fairwork.gov.au/awards-and-agreements/awards](http://fairwork.gov.au/awards-and-agreements/awards) to source information relating to rates of pay, etc. in the hospitality and retail industries. Alistair might consider some of the following points when comparing jobs: reputation of the company or shop, rate of pay, the work itself – whether it is challenging/motivating/interesting, work hours, overtime, holiday entitlements, sick leave and other entitlements, employee assistance programs, etc.

## Worksheet 2

Students follow instructions to generate individual random sample data, so values for median and mean will vary. Students compare and discuss their results with others in the class.

## Worksheet 3

1. Example only – using the data from Canberra.



2. Example only – using the cost of a packet of biscuits in Brisbane

$$(4 \times \$2.54) \div \$1.74 = 5.8$$

Therefore 5 (almost 6) packets of biscuits could have been bought for approximately the same price in 2005

3. Example only – using the cost of a packet of biscuits in Brisbane

The cost appears to have increased the least between 2008 and 2009. A possible reason was the economic effects of the GFC.

4. a.  $319:187 = 1.7:1$

b.  $395:234 = 1.7:1$

c.  $C:B = C:2.55 = 1.7:1$

So,  $C = 2.55 \times 1.7 = \$4.34$  (expected cost of cereal)

d.  $C:B = 3:B = 1.7:1$

So,  $B = 3 \div 1.7 \times 1 = \$1.76$  (expected cost of biscuits)

5. and 6.

Students research the median cost of apartments in their state/territory or local area to complete the table and answer the questions

**Worksheet 4**

1.
  - a. Interest =  $0.05 \times 100 \times 3 = \$15$
  - b. Total monthly fee =  $1 \times 36 = \$36$
  - c. Account balance =  $100 + 15 - 36 = \$79$
  - d. Account balance =  $2000 + (0.05 \times 2000 \times 3) - 36 = \$2264$
  
2. Refer to the MoneySmart Teaching website for information on term deposits ([moneysmart.gov.au/investing/investments-paying-interest/term-deposits](http://moneysmart.gov.au/investing/investments-paying-interest/term-deposits)).
  - a. A term deposit is a cash investment paying a fixed interest rate for a set amount of time.
  - b. Advantages include: virtually no risk of losing your money; guaranteed interest rate; usually a higher interest rate than other transaction accounts.  
  
Disadvantages include: not having access to your money for the period of investment, or most likely having to pay a penalty for accessing money before the term maturity date; may be less flexible and provide a lower income than other comparable products; 'honeymoon' rates can drop if the investment automatically rolls over to a new term at maturity.
  - c. SalvoBank is better because it does not charge an establishment fee, so Bonnie will have \$100 invested rather than \$95, and will therefore earn slightly more interest.
  - d. Her account balances at the end of 3 years would be:  
TyroBank:  $(100 - 5) \times 0.08 \times 3 + 95 = \$117.80$   
SalvoBank:  $100 + (100 \times 0.08 \times 3) - 5 = \$119$
  - e. TyroBank:  $(2000 - 5) \times 0.08 \times 3 + 1995 = \$2473.80$   
SalvoBank:  $2000 + (2000 \times 0.08 \times 3) - 5 = \$2475$

**Worksheet 5**

1. a. Students research how prices have changed over a 2-year period, using online catalogues, asking parents/adults and local service providers, and using the ABS website. They complete the table using their researched data.
- b. Example only:  
The cost of an item 2 years ago was \$1.25, and its current cost is \$1.62  
Cost increase =  $1.62 - 1.25 = 0.37$   
% increase =  $\text{Increase} \div \text{Cost 2 years ago} \times 100$   
 $= 0.37 \div 1.25 \times 100 = 29.6\%$   
Average % increases of three items =  $\text{Total of \% increases} \div 3$
2. New hourly rate =  $\$16 + (\$16 \times \% \text{ found in question 1b})$
3. Students ask parents/other adults and/or research advice online about negotiating a pay increase. Some advice may include:
  - document all achievements to advocate why you deserve a pay increase. Include things you did to keep customers happy, save costs, generate extra revenue etc., and any training courses attended/completed
  - list added responsibilities/duties that are performed outside your job description
  - research pay rates for your role
  - compile emails/letters received for doing a great job
  - ask your employer for a scheduled meeting and rehearse your pitch beforehand
  - stay calm and confident.

**Worksheet 6**

Students address the criteria at the end of Worksheet 6 and hand in Parts 1 and 3. Their answers to Part 2 will be required for a class discussion. Students and teachers could refer to the MoneySmart Teaching home page for relevant topics and useful resources (example's. Managing your money, Investing, Information for under 25s).

See Assessment rubric for marking criteria.